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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,480	02/28/2002	Kenichi Machida	112069.01	6693

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EXAMINER

ANGEBRANDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/084,480	<b>Applicant(s)</b> MACHIDA, KENICHI	
	<b>Examiner</b> Martin J Angebranndt	<b>Art Unit</b> 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

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1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The photochemical hole burning media are used as low temperatures and the applicant should indicate this in the independent claims.

In claims 2, the rare earth complex is in the oxidized state (+3), but claim 1 recites the presence of a reducing agent. Should this be the (+2) state or do the ligands prevent the reaction between the +3 rare earth and the reducing agent ?

In claims 5, the recitation of “ a hexaalkyl disilazane represented by” and “ a hexaalkyldisilazane represented by” is superfluous.

3. Claims 7-11 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 4 already recites the electron donating composite to be a silane or disilazane, and claims 7-11 describe it as a tin compound.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,3-5,12-15,32 and 34-36 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Machida JP 2000-345037.

Machida JP 2000-345037 describes a europium (III) phenanthroline complex together with rhodamine in an ORMOSIL solgel matrix treated with hexamethyldisilazane. (text and English abstract).

7. Claims 1,3,4,12-14,32 and 35 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Adachi et al. JP 09-230296.

Adachi et al. JP 09-230296 describes a europium (III) phenanthroline complex in an ORMOSIL solgel matrix treated with an organic silane. (text and English abstract). The phenanthroline is considered a cryptand.

8. Claims 1,3,4,12,14,32 and 35 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Adachi JP 09-227861.

Adachi JP 09-227861 (machine translation attached) describes a europium (III) phenanthroline complex in an ORMOSIL solgel matrix treated with an organic silane. (text and English

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abstract). The phananthroline is considered a cryptand. The use of other ligands such as cryptands, crown ethers and the like are disclosed. (abstract and claim 1)

9. Claims 1-4,12-15 and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi JP 09-227861.

It would have been obvious to one skilled in the art to modify the example by using other ligands disclosed as useful to form the Eu complex, such as crown ethers, and cryptands in place of the phenanthroline with a reasonable expectation of achieving comparable results.

10. Claims 1-8,12-18,22-28 and 32-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over **either** Adachi JP 09-227861, Adachi et al. JP 09-230296 **or** Machida JP 2000-345037, in view of Che et al. '674 or Lin et al. EP 0263428.

Che et al. '674 teaches various precursors used to form solgel glasses of silica, lithium oxide, magnesium oxide, alumina, titania, manganese oxide, tin oxides and antimony oxides (2/20-43) to form mixed metal oxides. See also 3/30-40.

Lin et al. EP 0263428 teaches silicon oxides with titanium or zirconium oxides formed using sol gel methods. (abstract).

It would have been obvious to one skilled in the art to modify the processes of **either** Adachi JP 09-227861, Adachi et al. JP 09-230296 **or** Machida JP 2000-345037 by forming mixed metal oxides using solgel methods such as those disclosed by Che et al. '674 or Lin et al. EP 0263428 with a reasonable expectation of forming the rigid matrices.

The examiner notes that Che et al. discloses organotin compounds.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Sonoda et al. JP 10-231116 teaches hydrophobicization of solgel glasses through the treatment of hexamethyldisilazane. (abstract)

Bhattacharyya et al. 'Study of energy transfer in a naphthalene-liked crown ether ...', Chem Phys. Lett., Vol. 297 pp 154-164 (11/1998) teaches analysis of low temperature emission of Eu complexes.

Klonkowski et al., 'Improvement of emission intensity ....', J. Alloys & Compounds, Vol 300-301, pp. 55-60 (2000) and Tsuboi et al., "synthesis and fluorescence properties of ...", J. Am. Ceram. Soc., Vol 81(5) pp . 1197-1202 teach analysis of the emission spectra of Eu crown ethers and cryptands in solgel matrices.

Kummerl et al., 'Hole burning with chelate complexes ...', J. Phys. Chem., Vol. 96 pp. 10688-10693 (1992) teaches hole burning with rare earth complexes at low temperature.

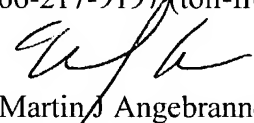
Parker et al. '629 teaches holographic media formed via solgel processes.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J. Angebranndt  
Primary Examiner  
Art Unit 1756